Standard Operating Procedure

Benzene

**This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.**

Print a copy and insert into your *Lab-Specific Chemical Hygiene Plan*.

**Section 1 – Lab-Specific Information**

| **Building/Room(s) covered by this SOP:** | Click here to enter text. |
| --- | --- |
| **Department:** | Click here to enter a date. |
| **Principal Investigator Name:** | Click here to enter text. |
| **Principal Investigator Signature:** | Click here to enter text. |

**Section 2 – Hazards**

Benzene is an OSHA regulated carcinogen. It is a highly flammable liquid and may form explosive mixtures with air. It can be harmful if inhaled, causing respiratory tract irritation. Benzene is harmful if absorbed through skin and causes eye and skin irritation. It may cause cancer and genetic defects.

**Exposure Limits:**

OSHA PEL (8 HR. TWA): 0.5 ppm

OSHA Short Term Exposure Limit: 1 ppm

ACGIH TLV/TWA: 0.1 ppm



**Section 3 – Engineering Controls and Personal Protective Equipment (PPE)**

**Engineering Controls:** Benzene should be used in a properly functioning chemical fume hood whenever possible. The chemical fume hood must be approved and certified by REM and have a face velocity between 80 – 125 feet per minute.

**Hygiene Measures:** Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

**Hand Protection:** Chemical-resistant gloves must be worn, nitrile gloves are recommended for low volume applications. Wearing two pairs of nitrile gloves is recommended. If handling a high volume (> 1 liters) of Benzene, then disposable gloves are likely not suitable; a more heavy duty glove such as a butyl rubber is required. **NOTE:** Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with the specific chemical being used.

**Eye Protection:** ANSI approved properly fitting safety glasses or chemical splash goggles are required. A face shield may also be appropriate depending on the specific application.

**Skin and Body Protection:** Laboratory coats must be worn and be appropriately sized for the individual and buttoned to their full length. Flame resistant lab coats must be worn when handling volumes greater than 1 liter. Personnel must also wear full length pants, or equivalent, and close-toed shoes. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle must not be exposed.

**Respiratory Protection:** If benzene is being used outside of a chemical fume hood, respiratory protection may be required. If this activity is necessary, contact REM (49-46371) so a respiratory protection analysis can be performed.

**Section 4 – Special Handling and Storage Requirements**

* A designated storage area must be established for Benzene and the area should be posted with a “Caution, Carcinogen, Reproductive Toxins, or Extremely Toxic Chemicals” label provided by REM (as shown to the right).
* Avoid contact with skin and eyes and inhalation.
* Keep away from sources of ignition.
* Keep containers tightly closed.
* Store in a cool, dry and well-ventilated area away from incompatible substances such as oxidizers.
* A suitable storage location is a flammable storage cabinet that does not contain incompatibles.

**Section 5 – Spill and Accident Procedures**

Immediately evacuate area and ensure others are aware of the spill. If there is an imminent threat of a fire, pull the nearest fire alarm station to evacuate the building and **dial 911**. If personnel have become exposed and need medical assistance, **dial 911**. If the spill is minor and does not pose a threat to personnel, contact REM at 49-40121 during normal business hours (Monday – Friday, 7 AM – 4 PM) for spill cleanup assistance (dial 911 if spill occurs after hours and assistance is needed).

**Section 6 – Waste Disposal Procedures**

Store hazardous waste in closed containers that are properly labeled, and in a designated area (flammable cabinet is recommended). Flammable and combustible liquid waste should be segregated from all incompatibles such as oxidizers. No flammable or combustible liquids (including alcohols) are permitted to be poured down the drain. Complete a Chemical Waste Pickup Request Form to arrange for disposal by REM; detailed instructions are provided at the following link: <http://www.purdue.edu/ehps/rem/hmm/chemwaste.htm>.

**Section 7 – Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE:** Any deviation from this SOP requires approval from PI.

**Section 8 – Documentation of Training (signature of all users is required)**

**I have read and understand the content of this SOP:**

| **Name** | **Signature** | **Date** |
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